

Heuristic Evaluation

Method

- A Heuristic Evaluation is an expert usability inspection method for software applications that helps to identify usability problems with the UI
- The software UI designs were assessed against recognized usability principles (heuristics), mobile experience, and MOU requirements
 - Nielsen's 10 Usability Heuristics: Nielsen, Jakob. (1994). Heuristic evaluation. In Nielsen, J., and Mack, R.L. (Eds.), Usability Inspection Methods, John Wiley & Sons, New York, NY

Objectives

- Identify potential usability issues with the Free File software providers
- Identify areas where there is misalignment with the IRS requirements outlined in the MOU
- Identify issues on mobile device access and usability of the software
- Prioritize identified usability issues via severity ratings
 - MOU issues were rated in detailed spreadsheets which can be viewed in Appendix H. The severity scores were determined based on whether the user could complete the task at hand.

Severity Level & Description

5	No observed usability problems related to this heuristic
4	Nuisance problems identified
3	Minor usability problems
2	Major usability problems
1	Severe usability problems (possible user failure)

Procedure

1. Review and rate task flow and user interface of each Free File member software site. Every problem identified is tagged with one of ten Nielsen's heuristics, mobile friendliness, and MOU requirements with a 1-5 severity score.
2. When multiple issues are found under one category, the lowest score determined is used
3. Individual scores are tallied and a percentage score determined

Heuristic Evaluation Dashboard Summary

Dimension	1	2	3	4	5	6	7	8	9	10	11	12
User Experience	↑	↑	↑	→	↓	↑	→	↑	→	↑	→	↑
UX MOU Adherence	→	↑	→	↑	→	→	→	↓	→	↑	→	↑
Mobile Experience	↑	↑	→	→	→	↑	↓	→	↓	↑	↑	↓

SUMMARY

At a glance, the Free File providers adhere to many UX best practices. Overall, they could improve the most in “Error Prevention” and “Match Between System & Real World” heuristics. The most significant UX MOU improvement to make across the board is “Transparency around ineligibility.”

Score range



85% to 100%. Area of strength.



70% to 84%. Room for improvement.



0% to 69%. Area of weakness.

All of the scores from the heuristic review are rolled up into this dashboard which shows a quick view of the summary scores for user experience (UX), mobile experience, and UX MOU adherence. The pages that follow provide a more detailed breakout of the scores from the heuristic review by each heuristic and grouping of MOU requirements.



The top two highest-rated providers were 2 and 10 which all had exceptional user experience, intuitive mobile experiences, and adhered to the MOU. Other providers might consider mirroring the transparency provider 10 has around free file eligibility, which lets the user know very quickly whether or not they are eligible to proceed through the Free File process. The colloquial language and step-by-step flow of provider 2 was a refreshing user experience, especially for novice taxpayers.



The providers that received the lowest ratings were 5 and 9 due to difficult to use interfaces. Providers 7, 9, and 12 did not have mobile-optimized sites, making it very difficult for users to file their taxes from a mobile device.

Heuristic Evaluation Dashboard

Nielsen's 10 Usability Heuristics	1	2	3	4	5	6	7	8	9	10	11	12
Visibility of system status	5	5	5	5	4	5	4	5	4	5	3	3
Match between system and the real world	4	5	5	2	3	4	4	4	5	5	3	3
User control and freedom	5	5	5	5	5	5	4	2	5	5	4	5
Consistency and standards	5	5	5	5	5	5	4	5	3	5	3	5
Error prevention	5	5	3	5	4	4	1	3	2	5	4	3
Recognition rather than recall	5	5	5	3	3	3	4	5	3	5	3	5
Flexibility and efficiency of use	5	5	5	4	3	5	4	5	2	5	4	5
Aesthetic and minimalist design	5	5	5	2	2	5	4	5	3	5	5	4
Help users recognize, diagnose, and recover from errors	5	5	5	4	1	5	3	5	5	5	5	5
Help and documentation	5	5	5	2	3	4	4	4	3	5	4	5
Total	49	50	48	37	34	45	36	43	35	50	38	43
User Experience Score	98 %	100 %	96 %	74 %	66 %	90 %	72 %	86 %	70 %	100 %	76 %	86 %
UX MOU Requirements	1	2	3	4	5	6	7	8	9	10	11	12
Privacy, security, free from marketing	4	4	4	5	5	4	4	3	3	4	5	4
Understands offering available	4	5	5	4	3	4	3	4	4	4	4	4
User control and access	5	5	5	5	2	5	3	2	5	5	3	5
Meets expectations	4	5	5	4	4	4	5	4	5	5	4	4
New technologies	4	5	5	4	5	4	4	4	4	5	4	4
Transparency around ineligibility	4	4	1	4	4	4	3	3	4	5	5	5
Total	25	28	25	26	23	25	22	20	25	28	25	26
MOU Score	83 %	93 %	83 %	87 %	77 %	83 %	73 %	67 %	83 %	93 %	83 %	87 %
Mobile Experience	1	2	3	4	5	6	7	8	9	10	11	12
Mobile optimized site	5	5	4	4	4	5	3	4	3	5	5	2
Mobile Experience Score	100 %	100 %	80 %	80 %	80 %	100 %	60 %	80 %	60 %	100 %	100 %	40 %

Scoring Methodology

User Experience

- Review and rate task flow and user interface of each Free File member software site. Every problem identified is tagged with one of ten Nielsen's heuristics and a 1-5 severity score.
- When multiple issues are found under one category, the lowest score determined is used.
- Individual scores are tallied and a percentage score determined.

Mobile Optimized Site

Evaluators used Developer Tools “toggle device toolbar” to inspect mobile performance. The following checklist was be used:

- If the website is optimized for mobile phone browsers (e.g., larger navigation buttons, reformatted content, optimized images) it will receive a “5.” Any website that does not provide an optimized site (for example, the user must zoom in to read content or complete a task) will receive a “2” – this is considered a major usability issue, however the content is still accessible. Inaccessible content receives a severity score of “1”.
- **If** a vendor receives **two or more** heuristic review scores of “4” on mobile screens, the score is reduced to “4”
- **If** a vendor receives **one or more** heuristic review scores of “3” on mobile screens, the score is reduced to “3”

UX MOU Requirements

- Review and rate task flow and user interface of each Free File member software site. Any issue identified that does not align with the users perspective on the MOU is identified, tagged and rated on a 1-5 severity score.
- When multiple issues are found under one category, the lowest score determined is used.
- Individual scores are tallied and a percentage score determined.

Nielsen's 10 Usability Heuristics

Jakob Nielsen's 10 general principles for interaction design

Nielsen's 10 Usability Heuristics	
Visibility of system status	The system should always keep users informed about what is going on, through appropriate feedback within reasonable time
Match between system and the real world	The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order
User control and freedom	Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo
Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions
Error prevention	Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action
Recognition rather than recall	Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate
Flexibility and efficiency of use	Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions
Aesthetic and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility
Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution
Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large

User Experience (UX) MOU Requirements

How the MOU requirements are demonstrated via the user experience

UX MOU Requirements

Privacy, security, free from marketing	User recognizes the system is secure and their privacy is protected. The system does not link to its paid offerings, nor does it request any unnecessary personal information, such as billing information (except when legitimately offering a state return for a fee). (Reference: 4.1.3vi; 4.32.6; 4.19.3; 4.19.4)
Understands offering available	User feels confident the forms and schedules they use are supported by the system, and understands which forms or schedules are not accepted. They see whether or not they can file their state return for free. If free filing is not offered for their state, they understand there is a fee and see the cost. They see a prominent link back to the IRS.gov Free File Landing Page on the systems' landing page. Prior to and during their experience, the user has a clear sense of their free customer service options. (Reference: 4.5.3; 4.5.4; 4.21.1; 4.32.1; 4.15.4; 4.32.7)
User control and access	A user has the option to complete their return at a later date. They may choose to print their return for free and is aware of the option to do so. User may see the status of their return and obtain a copy after electronic filing. (Reference: 4.15.4; 4.15.4; 4.15.3; 4.15.1)
Meets expectations	User links to expected free file site from IRS.gov. The system meets user's expectations for the name of the site. User understands that the system is a legitimate Free File site via an appropriate logo. (Reference: 4.19.3; 4.33; 4.34)
New technologies	Users are offered new technologies that pre-populate forms, such as uploading a W-2, when available. (Reference: 4.36.2)
Transparency around ineligibility	A user understands that they are ineligible as early as possible in the process. They understand why they are ineligible when informed. The user clearly sees a link back to IRS Free File Landing Page so that they may explore other options. In addition to understanding they may return to IRS.gov, the user may see that they may complete their return for a fee. In addition, an ineligible user who attempts to use the system is offered the option to print out their return for a fee equivalent to the systems commercial offerings. (Reference: 4.15.2; 4.19.2 vi; 4.19.2 i; 4.19.2 ii; 4.19.2 iii; 4.19.2 iv; 4.32.2; 4.32.5)